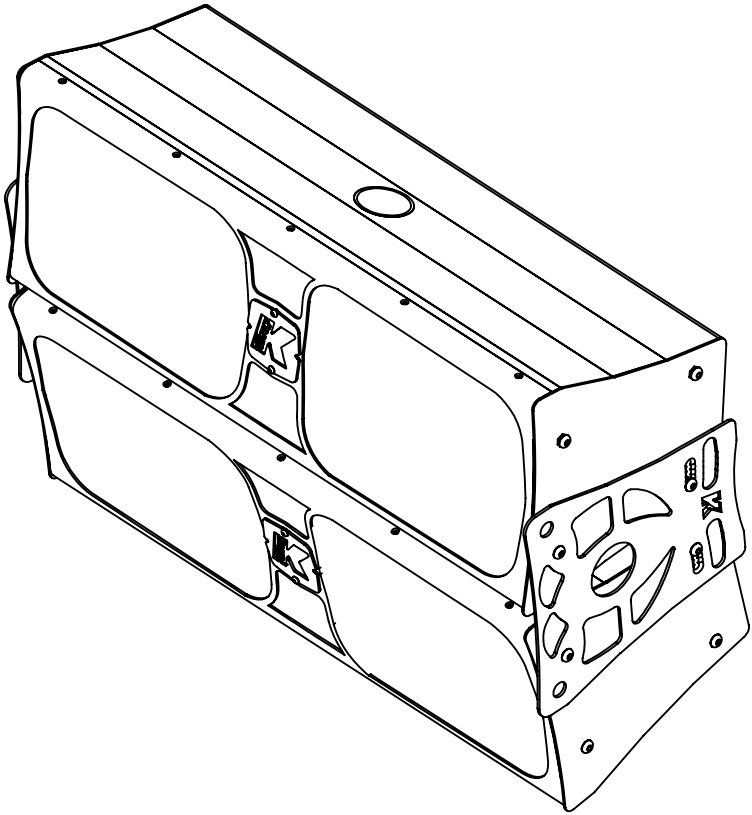
KN6 - KN10S

USER MANUAL - *english version*



PRELIMINARY

SYMBOLS

K-array declares that this device is in compliance with the applicable CE standards and regulations. Before putting the device into operation, please observe the respect ive count ry-specific regulations!

WEEE

Please dispose of this product at the end of its operational lifetime by bringing it to your local collection point or recycling centre for such equipment.

This symbol, wherever it appears, alerts you to important operating and maintenance instructions in the accompanying literature. Read the manual!

Warning! Dangerous voltages: RISK of electric schock.

This symbol alerts the user to the presence of recommendations about product's use and maintenance.

This device complies with Restriction of Hazardous Substances Directive.

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1. INTRODUCTION

KN6 and KN10S are stainless steel, self-powered, 2-way full range speaker systems. Tey are compact and powerful with multiple D class amplifier channels dedicated to each of their transducer elements. KN6 has a wide 130° vertical coverage pattern and the ability to select the horizontal coverage from 10° to 130°, making it usable as both a point source and as a line array element.
The system is ideal for medium throw applications in theatres, concert halls, houses of worship and AV installations. KN6 uses two 6” Neodymium cone speakers with 2.5” voice coils for low-mid frequencies. The mid-high frequency section employs three 1” voice coil Neodymium compression drivers. The transducers are optimized with on-board DSP pre-sets. KN6 is designed to easily integrate with KN10s selfpowered subwoofer.
The KN10s subwoofer module employs two 10” transducers with Neodymium magnet structure and suspensions engineered for maximum linear excursion.

All KN6 and KN10S components are designed by the K-array R&D department and custom made under the K-array quality control system.

- Background music systems in restaurants and clubs
- High-quality distributed systems for paging and music
- Exhibit audio for museum displays
- Space-sensitive fill for theatres

3. KEY FEATURES

- Ultra strong stainless steel enclosure
- For stand-alone use or as line array element
- Flat amplitude and phase response
- Selectable point/line source emission
- Self powered
- Integrated 35mm pole adapter
- Unique performance-to-size ratio

4. UNPACKING

Each K-array loudspeaker is built to the highest standard and thoroughly inspected before leaving the factory. Carefully inspect the shipping carton, then examine and test your new loudspeaker. If you find any damage immediately notify the shipping company. Only the consignee may institute a claim stages in the system's electronic equipment.

5. WARRANTY

K-array systems are warranted against manufacturing defects in materials or craftsmanship over a period of 2 years from the date of original purchase. During the warranty period K-array will, at it's discretion, either repair or replace products which prove to be defective provided that the product is returned in its original packaging, shipping prepaid, to an authorized K-array service agent or distributor. K-array cannot be held responsible for defects caused by unauthorized modifications, improper use, negligence, exposure to inclement weather conditions, act of God or accident, or any use of this product that is not in accordance with the instructions provided by K-array. K-array is not liable for consequential damages. This warranty is exclusive and no other warranty is expressed or implied. This warranty does not affect your statutory rights.

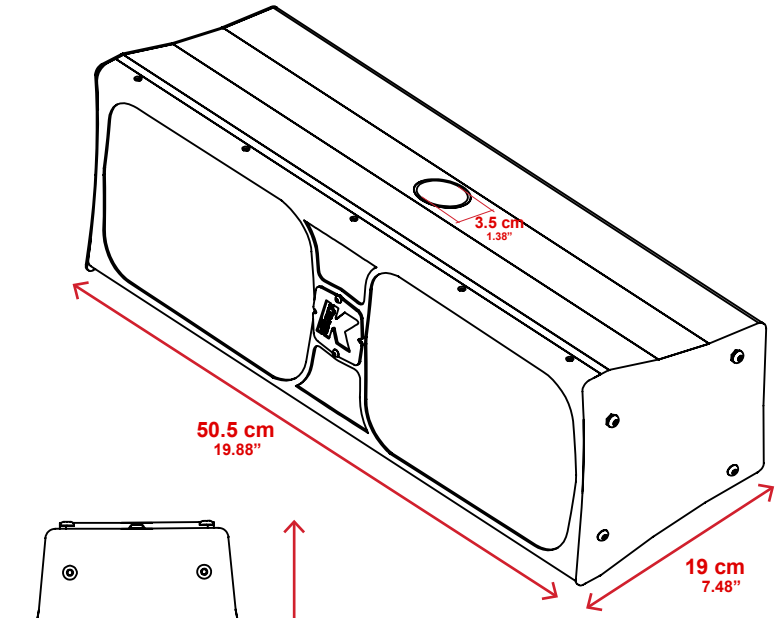
6. SAFETY

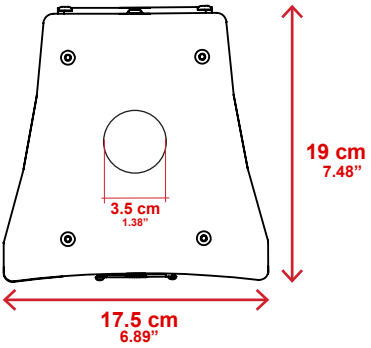
WARNING

- It is important that loudspeaker systems are used in a safe manner.
- Professional loudspeakers are capable of producing extremely high sound levels and should be used with care. Hearing loss is cumulative and can result from levels above 90dB if people are exposed for an extended period.
- Never stand close to loudspeakers driven at high level.
- Suspending the system should only be done by qualified personnel following safe rigging practices. Secure fixings to the building structure are vital. Seek help from architects, structural engineers or other specialists if in any doubt.
- Do not operate the speaker for an extended period of time with the sound distorting. This is an indication of malfunction, which in turn can cause heat to generate and result in a fire.
- Connect the power supply only to an appropriate power adapter.
- Do not install the speaker in wet or humid locations without using weather protection.
- Do not allow water or any foreign object to get inside the speaker. Do not put objects containing liquid on, or near, the unit.
- To reduce the risk of overheating the amplifier, avoid exposing it to direct sunlight. Do not install the unit near heat emitting appliances, such as a room heater or stove.
- No naked flame sources such as lighted candles should be placed near the device.
- The speaker should be placed so that its location does not interfere with its proper cooling.
- Do not attempt to disassemble the unit. The unit contains no user serviceable parts. Repairs should be performed only by factory trained service personnel.
- Be sure that the adapter has the correct voltage value.

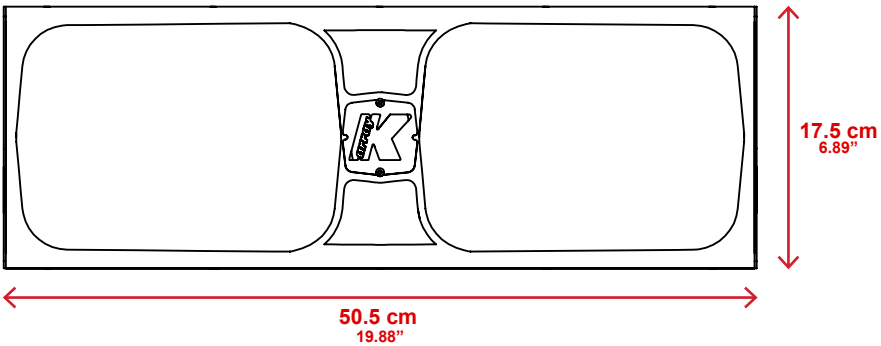
7. PHYSICAL

KN6

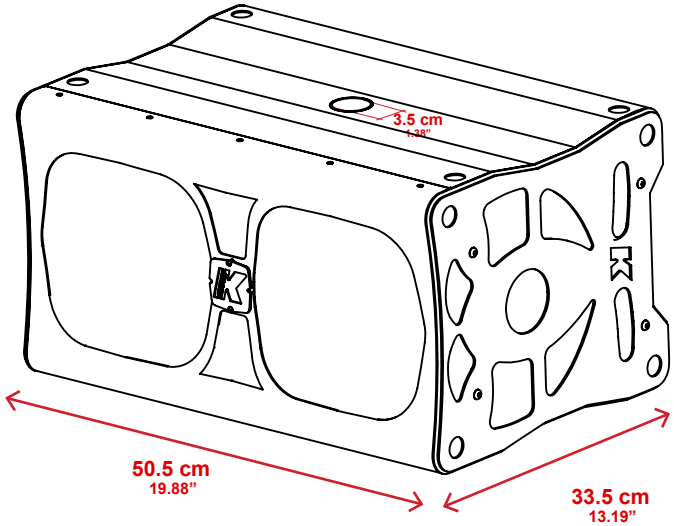


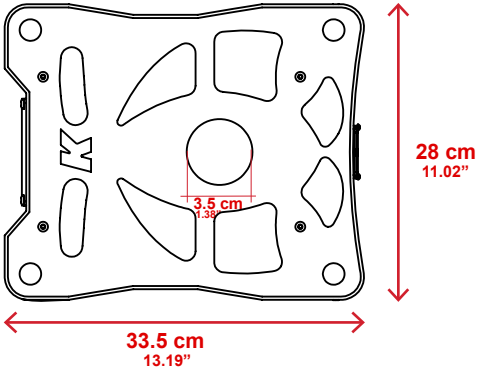


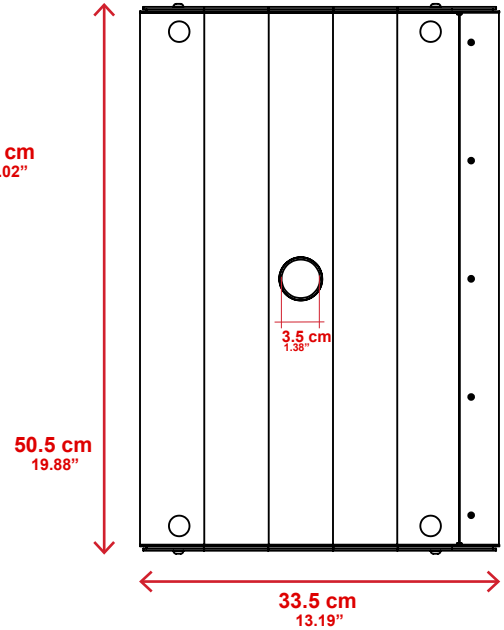
weight: 9 kg (19.84 lbs)



KN10S







weight: 17 kg (37.48 lbs)

8. AMPLIFIER

8.1 AC POWER CONNECTOR

The amplifier module and the rest of the audio equipment connected to it (mixing consoles, processors, etc.) must be connected to the AC power distribution in a proper way, preserving AC line polarity and connecting earth ground such that all grounding points are connected to a single node or common point using the same cable gauge as the neutral and line(s) cables. Bad grounding connections between speakers and the rest of the audio system may produce noise, hum and/or serious damage to the input/output stages in the system's electronic equipment.

Before applying AC to any K-array self-powered speaker, be sure that the voltage potential difference between neutral and earth ground is less than 5 VAC.

8.2 VOLTAGE REQUIREMENT

KN6/KN10S operates safely and without audio discontinuity if the AC voltage stays within a operating window from 90 V to 260 V.
Check the voltage before connecting the amplifier to the AC power.
A higher voltage could seriously damage the device.

8.3 CURRENT REQUIREMENT

The KN6/KN10S presents a dynamic load to the AC mains, which causes the amount of current to fluctuate between quiet and loud operating levels. Since different cables and circuit breakers heat up at varying rates, it is essential to understand the types of current ratings and how they correspond to circuit breaker and cable specifications. The maximum continuous RMS current is the maximum RMS current in a period of at least ten seconds. It is used to calculate the temperature increase in cables, which is used to select cables that conform to electrical code standards. It is also used to select the cable size and gauge and the rating for slow-reacting thermal breakers. The maximum burst RMS current is the maximum RMS current in a period of approximately one second. It is used to select the rating for magnetic breakers. The maximum instantaneous peak current during burst is used to select the rating for fast reacting magnetic breakers.

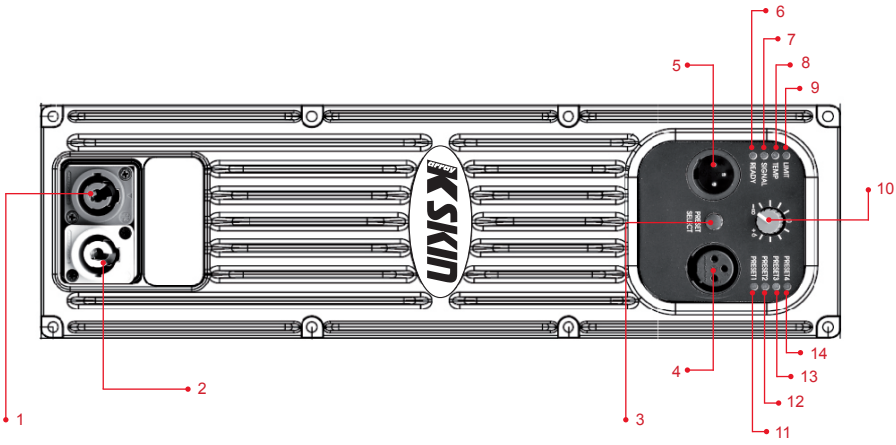
For best performance, the AC Cable voltage drop should not exceed 10% at 115V and 5% at 230V.

The minimum electrical service amperage required by a K-array Skin system is the sum of their maximum continuous RMS current. We recommend allowing an additional 30% above the minimum amperage to prevent peak voltage drops at the service entry.

KN6/KN10S max continuous apparent power (VA)

140VA(>10 sec) - 700VA (<1 sec) autorange

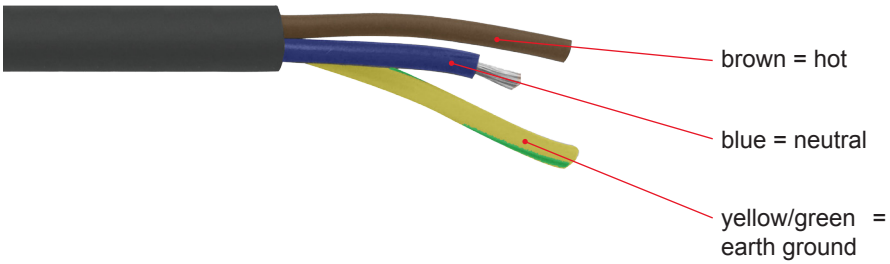
8.4 REAR PANEL



1. Power connector IN
2. Power connector OUT (max 15A)
3. Preset selector,
   press one to change, 10 sec. to store
4. Audio INPUT
5. Parallel audio OUTPUT
6. Indicator of proper operating
7. Indicator of signal/clip INPUT
8. Indicator of temperature protection
9. Indicator of clip limiter
10. Audio Input level PAD
11,12, 13, 14 Preset in use

8.5 POWER CONNECTORS WIRING

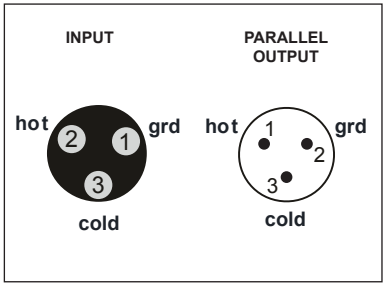
The KN6/KN10S's amplifiers receives DC power from the 3-pin blue PowerCon connector on their back panel. The white PowerCon connector is a parallel OUTPUT for supplying power to other devices (max 16A supported). When AC power is applied to the speaker, the auto-range power supply selects automatically the correct operating voltage.
For creating your power cables, please use the following wiring diagrams:



8.6 AUDIO INPUT CONNECTORS WIRING

The Audio section includes a female balanced XLR connector and a male XLR connector wired in parallel. Thanks to these connectors it is possible to feed a module and to send the same signal to another one through the LINK connector. It is possible to connect till 30 different modules in parallel on the same balanced line (with a source of 600 ohm output impedance). A Level Control potentiometer (PAD) allows different set levels. For creating your signal cables, please use the following wiring diagrams:

XLR connector



8.7 AMPLIFICATION AND PROTECTION CIRCUITRY

The KN6 and KN10S are powered by the a multi channel high power digital amplifier.

KN6: 2 x 250W class D amplifier channel + 2 x 20W class A/B amplifier channel
KN10S: 2 x 250W class D amplifier channel

All the specific functions for the KN6 or KN10S such as crossovers, frequency, phase response, and driver protection are determined by a DSP processor installed inside the amplifier.

The devices have three different type of audio signal limiter. The Clip limiter, the average Power limiter and the High Frequency limiter reduce the risk of damaging the components of the speakers.
A Peak Current Shut Down acts as output stage switching process inhibition that resets itself after 2 seconds. The tripping point is at 35A.

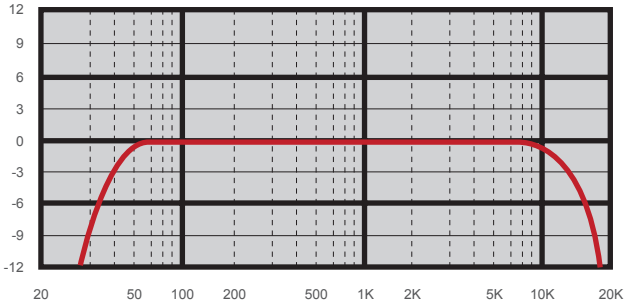
A temperature protection acts reducing the output stage gain above temperature level of 85° (temperature on output power devices proximity).

8.8 DSP

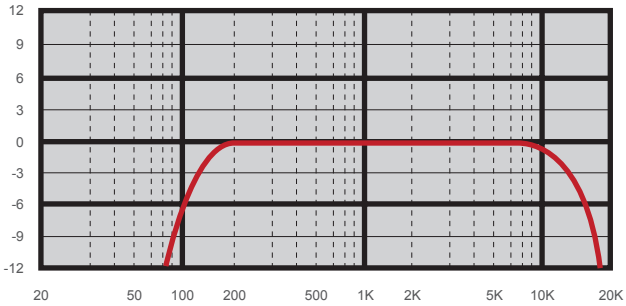
The internal DSP allows to choice between four different default presets.

SLOT	KN6	KN10S
1	KN6 narrow	KN10S
2	KN6 wide	KN10S EXT
3	KN6 narrow MH	KN10S 150 Hz
4	KN6 wide MH	KN10S 150 Hz EXT

KN6 narrow
KN6 wide

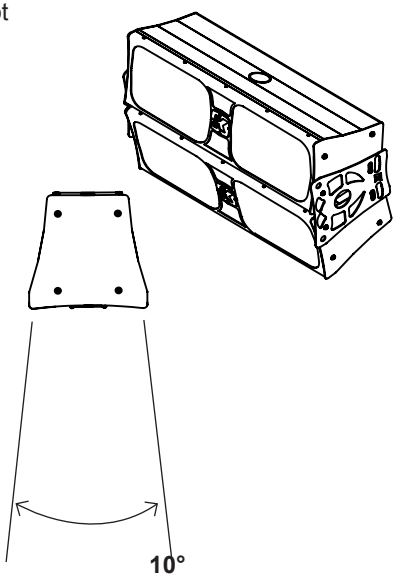


KN6 narrow MD
KN6 wide MD



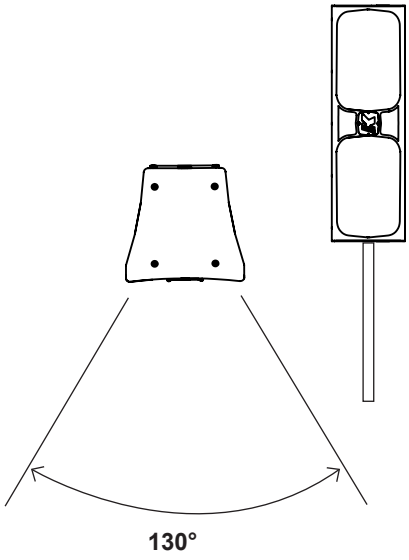
LINE ARRAY

Spot

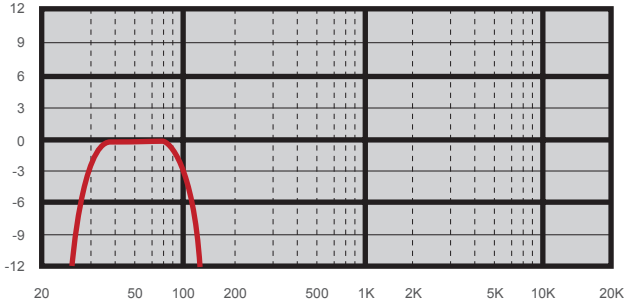


POINT SOURCE

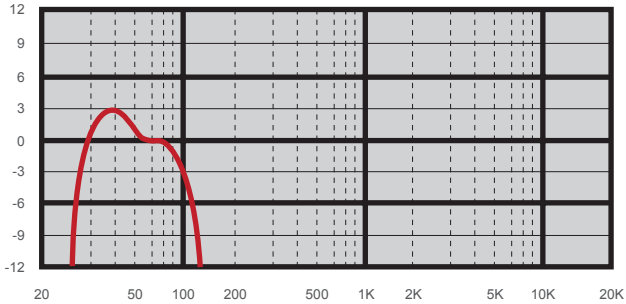
Flood



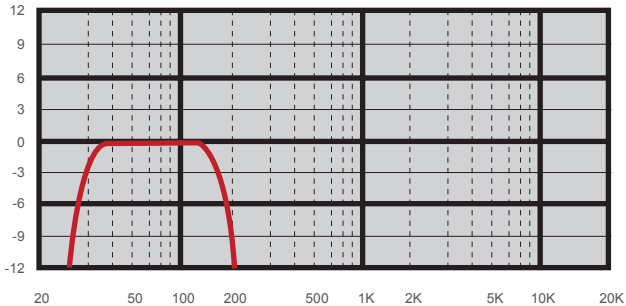
KN10S



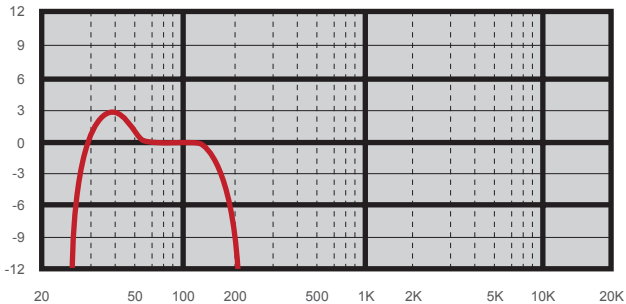
KN10S EXT



KN10S 150Hz



KN10S 150Hz EXT



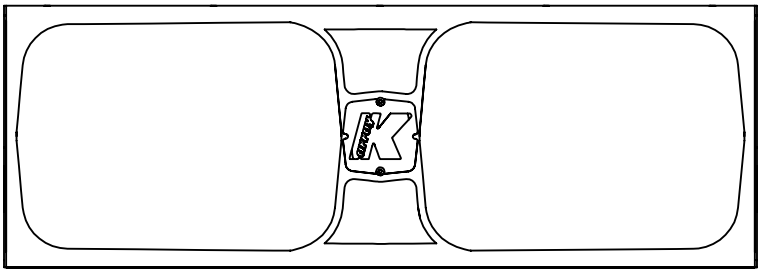
9. SERVICE

To obtain service:
1) Contact the official K-array distributor in your country. They will direct you to the service centre.
2) If you are calling for service, have the serial number(s) of the unit(s) at hand for reference. Ask for Customer Service, and be prepared to describe the problem clearly and completely.
3) If the problem cannot be resolved over the phone, you must return the unit for service.
4) You will be given an RA (Return Authorization) number for job tracking. Refer to this number on shipping materials and in all correspondence concerning the repair. Shipping charges are the responsibility of the purchaser.

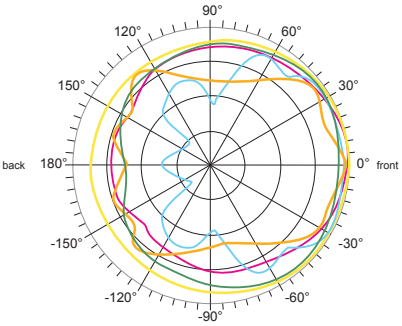
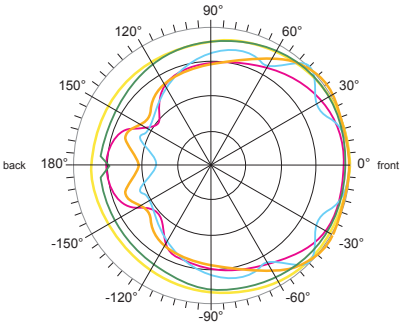
Any attempt to modify or replace components of the device will invalidate your warranty. Service must be performed by an authorized K-array service center.

Cleaning:
Clean the product enclosures using a soft, dry cloth only. Do not use any solvents, chemicals, or cleaning solutions containing alcohol, ammonia, or abrasives. Do not use any sprays near the product or allow liquids to spill into any openings.

10. DISPERSION GRAPHS



IN HORIZONTAL POSITION

HORIZONTAL	8 KHz 4 KHz 1 KHz 500 Hz 250 Hz	VERTICAL	8 KHz 4 KHz 1 KHz 500 Hz 250 Hz
KN6		**KN6 - WIDE mode**	
			

11. KN6 TECHNICAL DETAILS

	KN6
	Acoustics
Power handling	2x250 + 3x20 w(AES)
Maximum amplifier power	2x500 + 3x40 w(EIAJ)
Impedance	2x4Ω + 3x16Ω
Operating frequency range	45Hz - 19 KHz +/- 3dB (preset dependent)
SPL 1W/1mt	96 dB (low) 104 dB (high)
Maximum SPL	125 dB continuous - 131 dB peak
	Coverage (in horizontal position)
Horizontal	130°
Vertical	selectable from 10° to 130°
	Crossover
Type	DSP controlled
Frequency	1.8 KHz minimum (preset dependent)
	Transducers
Low - Mid frequency	2 x 6" Neodymium speakers with 2.5" voice coil
High frequency	3 x 0.5" Neodymium compression driver with 1" voice coil
	Audio Input
Connectors	male + female parallel 3-pin balanced XLR
Wiring	PIN1= ground PIN2 = hot (+) PIN3 = cold (-)
	Power Input
Connectors	1 x 3-pin PowerCon
	Amplifiers
Type	2 x 250W class D amplifier channel - DSP controlled + 2 x 20W class A/B amplifier channel
Power (woofer)	350 + 350 Watt[1]
Power (driver)	2 x 40 Watt[1]
Protection	Dynamic limiter, over current, over temp, short circuits
	AC power
Operating range	85 - 270 Vac 50/60Hz autorange
Max continuous and burst current	140VA(>10 sec) - 700VA (<1 sec) autorange
	Physical
Dimensions	19 x 50.5 x 17.5 cm (7.48"x 19.88"x 6.89")
Weight	9 Kg (19.84 lbs)

Notes for data

1. Amplifier wattage rating is based on the maximum unclipped burst sine wave RMS voltage that the amplifier will produce into the nominal load impedance .

New materials and design are introduced into existing products without previous notice. Present systems may differ in some respects from those presented in this brochure.

12. KN10 TECHNICAL DETAILS

	KN10S
	Acoustics
Power handling	2 x 250 w(AES)
Maximum amplifier power	2 x 500 w(EIAJ)
Impedance	2 x 4 Ω
Operating frequency range	30Hz - 150 Hz +/- 3dB (preset dependent)
Frequency range	40Hz - 150 Hz +/- 3dB (preset dependent)
SPL 1W/1mt	95 dB
Maximum SPL	124dB continuous - 130 dB peak
	Coverage
Horizontal	Omni
Vertical	Omni
	Crossover
Type	DSP controlled
Frequency	150 Hz minimum (preset dependent)
	Transducers
Low - Mid frequency	2 x 10" Neodymium speakers with 2" voice coil
	Audio Input
Connectors	male + female parallel 3-pin balanced XLR
Wiring	PIN1= ground PIN2 = hot PIN3 = cold
	Power Input
Connector	1 x PowerCon
	Amplifiers
Type	1 module class D - DSP controlled
Power (woofer)	350 + 350 Watt[1]
Protection	Dynamic limiter, over current, over temp, short circuits
	AC power
Operating range	85 - 270 Vac 50/60Hz autorange
Max continuous and burst current	140VA(>10 sec) - 700VA (<1 sec) autorange
	Physical
Dimensions	50.5 x 33.5 x 28 cm (19.88"x 13.19"x 11.02")
Weight	17 Kg (37.48 lbs)

Notes for data

1. Amplifier wattage rating is based on the maximum unclipped burst sine wave RMS voltage that the amplifier will produce into the nominal load impedance .

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APPROVAL

K-array declares that this device is in compliance with the applicable CE standards and regulations. Before putting the device into operation, please observe the respect ive count ry-specific regulations!

WEEE

Please dispose of this product at the end of its operational lifetime by bringing it to your local collection point or recycling centre for such equipment.

The contents of this manual are furnished for informational purpose only. Hp Sound Equipment s.r.l. assumes no responsability for any errors or inaccuracies thatmay appear in this manual. Hp Sound Equipment s.r.l. reserves the right to make modifications without prior notice.

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